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Letter No. 9
May 1, 1943

Dear Doctor:

This letter is sent to you by the Surgeon Generals of the Army, Navy and the U. S. Public Health Service, with the cooperation of the American Medical Association and under the auspices of the Committee on Information of the Division of Medical Sciences of the National Research Council.

Dr. Frank H. Lahey describes an instance in which a rubber tube was used as a substitute for a destroyed hepatic or common bile duct with the tube intact at the end of six years, apparently in good condition, satisfactorily draining bile into the common duct. The tube should be of sufficient caliber to prevent passage through the sphincter of Oddi. It should not project into the duodenum. It should be so implanted that it is surrounded by tissues which will form a bed first and hold it in place. Dr. Lahey suggests that time may well prove whether a vitallium tube is superior to a rubber tube. His concern over a metal tube relates solely to the possibility of pressure necrosis of the portal vein from a rigid and nonflexible tube. (The Lahey Clinic Bulletin, April, 1943, page 98)

In a discussion of Vincent's infection, also called trench mouth syndrome, J. Stanley White, writing in St. Bartholomew's Hospital Journal (November 1942, page 16), suggests thorough cleansing of the area, including removal of slough and calculus, at the earliest possible moment. In the Birmingham Dental Hospital, where more than 350 cases were treated in six months, local treatment consisted of 10 per cent chromic acid, followed by hydrogen peroxide solution, brilliant green and crystal violet and acriflavin. Subacute cases were treated with a paste of zinc oxide and oil of cloves on cotton-wool wisps. Nicotinic acid therapy was also used, and mouth washes were supplied, particularly those containing oxidizing agents, such as sodium perborate. Dr. J. Stanley White says that mapharsen is directly spirocheticidal, both in vitro and in vivo. It is effective when applied topically in dry form or it may be used in concentrated solution, either with water or glycerine. When used locally in solid form or in aqueous solution, the drug does not cause necrosis of, nor other objective damage to, the mucous membranes of the mouth. In time of war rapid cure is desirable to lessen contagion.

"Injuries of the Large Intestine in War" is the subject of an article by Surgeon Rear Admiral G. Gordon-Taylor of the British Navy, published in The Medical Press and Circular, March 24, 1943, page 180. The recovery rate among cases of injury to the colon in this war for whom operation was considered possible, he says, was 40 per cent in this series. Apart from cases of "immersion

1-19

blast," damage to the colon was frequent at operation undertaken for subparietal injuries of the abdomen. No case of large intestine injury was found in a series of fatal air-raid casualties due to the collapse of buildings, crushing force, or blows on the belly from fragments of masonry or pieces of steel or timber. His personal observation and the experience of others indicate that injuries of the colon are not uncommon among ship-wrecked men in water exposed to the detonation of depth charges and other forms of underwater explosion. The perforations may be single or even multiple, the colon being ruptured in more than one spot. Tears of the small bowel may be present in addition to colonic laceration. Subparietal rupture of the colon is more frequently produced by the effects of blast in water than by blast in air. Penetrating wounds of the colon are often complicated by damage to other abdominal viscera. Prolapse of the damaged large intestine seriously prejudices the hope of recovery. The author says that it is almost criminal to turn the patient at the end of a laparotomy on to his side in order to gain access to a wound on the back. Wounds of the loin, buttock or posterior aspect of the upper thigh should always receive priority of treatment. The formal excision of the wound of the loin or posterior portion of the flank may frequently provide at the very commencement of the undertaking favorable access for the appropriate treatment of the wound of the extraperitoneal surface of the vertical colon or cecum. This approach will at least furnish an avenue for the introduction of sulfanilamide powder and for lavish drainage of the lethal retroperitoneal tissues.

Occupational Therapy and Rehabilitation, the official periodical of the American Occupational Therapy Association, in its April 1943 issue reprints an article by Hilde Marchant from the London Daily Mirror under the title "Forget the Word Cripple." The article was based on a visit to a rehabilitation hospital in England. Experienced vocational officers make rounds in the wards of hospitals where limbless men and women wait for their wounds to heal. Such people are given the finest artificial limbs and a job of work to do. Psychologic adjustment to the injury is an important part of the process. Many armless and legless men are at work. Those recently injured are shown what those who have previously lost limbs are able to accomplish. Special attachments and devices have been developed which enable the worker with a prosthesis to do many of the tasks. A special adjustment was developed for fighter pilots who had lost one arm, and there are now several one-armed fighters, including a Pole and a Frenchman, associated with the British forces. The Ministry of Labor in Great Britain has also sent vocational officers to all the battle fronts to investigate instances of men who have lost limbs in order to begin at the earliest possible moment the process of rehabilitation. The article concludes: "One word which Mr. Bevin wants to strike out of the language is 'cripple,' and with it, all the helplessness of the war injured."

The fundamental work in the use of refrigeration anesthesia for amputation was done by Dr. Frederick M. Allen in the City Hospital of New York. For some time it has been known that tissues can be kept alive for many days at ice box temperature provided they are not frozen. In experiments Allen has demonstrated that cooling of limbs and other parts with ice water or ice, cracked or pulverized, down to near the freezing point, say 5 C. (40 F.), is harmless. There is a temporary suspension of life, with resumption of cellular activity as the temperature returns to normal. In refrigeration of limbs for anesthetic purposes, complete stoppage of the circulation is effected by careful application of the tourniquet. Such, in brief, is refrigeration anesthesia, which becomes complete after refrigeration for one or two hours. Needless to say, freezing must be avoided. A human limb can be kept bloodless and anesthetic below the tourniquet for at least eight hours and the indications are much longer, even up to forty-eight hours, without injury while the rest of the body remains warm. Amputation is done without pain, loss of blood or strength and also without shock. The nerves in the cooled, bloodless tissues cannot transmit painful impulses or harmful reactions. Toxic products are not absorbed from the refrigerated limb, and infection or its extension is prevented. Refrigeration anesthesia provides for a bloodless and shockless amputation, apparently without necessarily interfering with the healing of the stump, which can be cooled as desired by gradual removal of the refrigeration. Proper cooling will restrain the circulation in the stump, prevent edema and obviate pain. So far, the reports of the results of major amputations by this method have been uniformly favorable. The mortality in amputation above the knee in diabetic gangrene has been reduced by the method. (Allen, Frederick M., and Crossman, L. W.: Suggested Uses of Refrigeration Anesthesia Including War Surgery, Arch. Phys. Therapy 23: 711 (Dec.) 1942.)

From Russia comes a report by Professor A. Luriya, Director of the Restorative Clinic of the All-Union Institute of Experimental Medicine and Scientific Director of the Neuro-Surgical Restorative Hospital, on restoration of functions in cases of wounds of the nervous system. In facilitating the process of nerve regeneration, a piece of the nerve of a calf or a corpse preserved in formalin is inserted at the point of severance. Four hundred such operations have been performed. Physical therapy is used to aid the growth of the nerve. Occupational therapy is also employed to encourage motion as soon as healing has been established. An especially devised work shop has been prepared containing tools adapted to persons with nerve injuries. In the Restorative Clinic psychologists are concerned with the study of patients who have had injuries of the brain. Those who have lost the faculty of articulate speech are aided by various visual and motor devices. The work of the Restorative Clinic is described in two books, one Professor Hellerstein's "Restoration of Working Capacity and Labour Therapy," the other, Professor A. Luriya's "Psychology of Brain Wounds and the Restoration of Brain Functions," shortly to appear in Russian.

Various difficulties associated with the use of the sulfonamides, gramicidin, penicillin and propamidine in the treatment of wound infection have caused attention to be turned anew in Great Britain to the flavines. Products have been studied, chiefly, acriflavine and proflavine. Newer evidence indicates that the flavines can control established suppuration in wounds, and that this may occur in instances in which drugs of the sulfonamide group have failed. Continued use of the flavines seems to retard granulation and healing, so that it may be advantageous, once the infection is controlled, to change to other treatment. The subject is discussed in the British Medical Journal for March 20, 1943, which emphasizes the superiority of the flavines to the sulfonamides in the presence of gas gangrene.

Mitchell and Buttle (London Lancet, Oct. 10, 1942, page 416) have suggested the use of proflavine in powder form in the treatment of wounds, since this does away with the affinity of the materials, when in solution, for fabrics such as gauze. All of the acridines diffuse into fabrics, when in solution, rather than into the tissues of the wound.

In a review of "Military Medicine in the Middle East," Ernest Bulmer, Lieut. Colonel in the R.A.M.C., reports an experience of 13,542 cases seen in a large hospital situated in a base area in the Egyptian desert and covers the period between March 1941 to September 1942. He states that the medical department is working with a limited clerical and much depleted medical staff. The turn-over of patients is large and elaborate statistical analyses are impractical.

There have been roughly three medical to two surgical admissions. The percentage distribution of diseases includes:

Tropical diseases	45 percent
Acute and chronic respiratory diseases	17 "
Skin diseases (including scabies) ..	15 "
Functional and organic nervous disorders ...	7 "
Infectious diseases	5 "
Chronic digestive disorders	4 "
Chronic rheumatism	3 "
Diseases of the kidneys and bladder	1 "
Circulatory diseases	0.7 "

The figures for the tropical diseases include:

Dysentery group	4,173 with 2 deaths
Short-term fevers	1,153
Malaria	735 " 1 "

The other conditions were occasional cases of avitaminoses, relapsing fever, bilharziasis, kala-azar, leprosy and one death from heat stroke.

Of the dysenteries, the amebic were 1 per cent; acute catarrhal enteritis and bacillary dysentery 44 per cent.

The diagnosis of short-term fever was indefinite. Many of them were simply "P.U.O." Out of 2,000 patients, 805 were called sand-fly fever. Some of these proved to be malaria, relapsing fever, or poliomyelitis, which occurred in one instance. For 348 cases the diagnosis was never made. The author emphasizes the importance of the services of a good laboratory before any certainty can be developed in this regard.

Of the acute infectious diseases:

Acute infective hepatitis	341	cases with 1 death
Diphtheria	130	" " 4 "
Mumps	118	
Acute rheumatism	30	
Enteric group	24	" " 6 "
Measles	17	" " "
Meningitis, benign lymphocytic	16	" " "
Poliomyelitis and encephalitis	8	" " 1 "
Erysipelas	8	" " "
Cerebrospinal meningitis	6	" " "
Scarlet fever	4	" " "
Streptococcal meningitis	1	" " 1 "

Among 487 cases of nervous diseases, 456 were psychoneurosis. Among 291 cases of chronic digestive disorders, 56 were peptic ulcer, and 213 x-ray negative dyspepsia. Among 54 cases of circulatory diseases, 30 were effort syndrome and 24 valvular diseases of the heart and other diseases. There were 73 cases in the classification of urinary diseases.

The following paragraph is worthy of quotation: "We have not been working under conditions to which we were accustomed in peacetime. This hospital is built on desert which was uninhabitable three years ago; every possible amenity has been provided and we have ample safe water, a good hot-water system to the wards, electric lighting from a mains supply, and every reasonable drug and instrument. Three-quarters of the patients have been treated in tents and only the minority in the few hatted wards, conditions which would be impossible in England but are by no means ill adapted to this climate. I feel that the results of treatment could hardly have been bettered under our peacetime civilian conditions." (British Medical Journal, Mar. 27, 1943, p. 374)

A review in Physiological Reviews (Apr. 1943, p. 139) discusses "The Influence of Estrogens and Androgens on the Skeletal System." The authors conclude:

"The gonads or the steroid sex hormones regulate to some extent the morphogenesis of the skeleton and may control in part the extent of skeletal growth. Large amounts, especially of estrogens, inhibit the growth of cartilage and hence longitudinal osseous growth. The function of the pituitary gland is probably also altered in such animals and may be directly responsible for the ensuing 'dwarfism.' Small amounts of hormones, especially of androgen, may augment the rate of longitudinal growth of the skeleton.

"The steroid hormones may find a practical application in the prevention or alleviation of symptoms of senile osteoporosis, in the acceleration of the healing of fractures or in the augmentation of the rate of somatic growth in certain hypogonadal individuals."